effective in clearing  $A\beta$  plaques in in vivo and ex vivo experiments with PDAPP mice.

In paragraph 24 of the Official action, the examiner contends that the specification does not provide sufficient guidance that would enable the skilled artisan to conceive of and make any antibody that would prevent or reduce aggregation or disaggregate aggregates in a subject.

In view of the amendments to the claims (new claims 150-167), which recite that the epitope is within amino acids 1-28 of  $A\beta$ , or is obtainable using 1-28 of  $A\beta$  as the immunogen, applicant respectfully submits that the examiner's rejection has been rendered moot.

In paragraph 25 of the Official action, the examiner contends that undue trial and error experimentation would be required to make antibodies that are capable of prevention or reduction of  $A\beta$  aggregates or disaggregate the same in patients.

Contrary to the examiner's contention, as discussed above, the present specification shows that AMY-33 (raised against  $A\beta$  amino acids 1-28) inhibits aggregation of  $A\beta$ , Hanan et al (1996) shows that 6C6 and 10D5 (both raised against amino acids 1-28) inhibit aggregation of  $A\beta$ , and Solomon (PNAS 1997) shows that 6C6 (raised against amino acids 1-28) causes disaggregation of  $A\beta$  aggregates. On the other hand, the evidence shows that 6F/3D (raised against  $A\beta$  amino acids 8-17) does not inhibit  $A\beta$  aggregation. It would clearly not require undue experimentation for one skilled in the art to produce

antibodies with the claimed specificity (which the post-filing evidence (Bard et al (2000); Bard et al (2003); Bacskai et al (2001); and DeMattos et al (2001)) clearly demonstrates are effective at inhibiting aggregation of  $A\beta$  and disaggregating  $A\beta$  aggregates). That is, one could merely use, e.g.,  $A\beta$  1-28 as an immunogen, and assay for inhibition of aggregation or disaggregation, as described in the present application.

In paragraph 27 of the Official action, the examiner cites Walker et al for teaching that the anti-A $\beta$  antibody 10D5 did not disaggregate, prevent or inhibit aggregation.

Applicant respectfully submits that the examiner has mischaracterized Walker et al. Walker et al merely relates to in vivo imaging of  $A\beta$  deposits in the brain. Walker et al did not look for, much less carry out any experiments to measure disaggregation or prevention/inhibition of aggregation. In any event, as discussed above, Hanan et al (1996), Solomon (Fisher 1998), and the attached Solomon declaration, clearly show that 10D5 inhibited aggregation of  $A\beta$ .

In paragraph 28 of the Official action, the examiner cites Pan et al for teaching that anti-A $\beta$  antibodies, i.e., 3D6, decreases plaques in PDAPP mice by decreasing the concentration of A $\beta$  in the central nervous system, not by disaggregation. Thus, the examiner contends that Pan et al teaches that A $\beta$  plaques are not disassembled or prevented per se, but their formation is inhibited or in another sense slowed.

In re of Appln. No. 09/441,140

First of all, the experimentation reported in Pan was conducted on normal ICR mice, and not the PDAPP Alzheimer's disease mouse model. Thus, these mice do not spontaneously form amyloid plaques in the absence of antibody. The fact that the antibodies were shown to decrease the influx of  $A\beta$  into the brain does not necessarily mean that plaque is decreased.

Pan et al provides evidence that 3D6 can reduce the blood-to-brain influx of  $A\beta$ . However, this is merely one possible mechanism of action of 3D6. Pan et al does <u>not</u> exclude other mechanisms of action of 3D6. Indeed other mechanisms of action were <u>not</u> even tested in Pan et al. In this regard, Pan et al teaches, at page 614:

Thus, we have shown that peripherally administered antibodies can decrease the availability of blood-borne  $A\beta$  to the brain. This does not rule out other routes of action, such as direct penetration of the antibody into the CNS or an influence on the solubility and CSF dynamics of  $A\beta$ ... In addition the N-terminal epitope (1-28) of  $A\beta$  is essential for aggregation (21) and the 3-6 sequential epitope is particularly important (8, 9). mAb3D6 is directed to the 1-5 sequence and likely prevented the aggregation of  $A\beta$ . (Emphases added)

Hence, contrary to the examiner's contention, Pan et al presents no experimental evidence on the issue of plaque disassembly or prevention, although the above quote does not rule out the possibility of such routes of action, i.e., disassembly or prevention of plaque.

In this regard, the examiner is requested to note that DeMattos et al (2001) states that 10D5 and 3D6, which are

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effective at suppressing Aeta deposition in vivo in PDAPP mice are also able to decrease the concentration of  ${\tt A}{m eta}$  in the central nervous system, i.e., act as  $A\beta$  sinks. Thus, this reference concludes that disaggregation is one mechanism of inhibition of  $A\beta$  aggregation that contributes to the effects of peripherally administered anti-amyloid antibodies, and that they can not exclude the possibility that antibodies, such as 266, enter the brain and sequester a soluble, toxic  $A\beta$ species.

In any event, the claims have been amended (new claims 150-167) to recite "inhibition" of aggregation, thereby rendering moot this aspect of the examiner's rejection.

In paragraph 29 of the Official action, the examiner cites Akiyama et al for teaching that 6F/3D does not readily bind plaques in cerebral cortex sample from an Alzheimer's patient.

However, this result is entirely consistent with the data and teachings in the Solomon application and Solomon (PNAS 1996), which shows that 6F/3D does not prevent aggregation, and teaches that 6F/3D does not bind to a disaggregation epitope. Applicant respectfully draws the examiner's attention to the fact that 6F/3D tests negative in the Solomon experiments and is, therefore, not covered by the claims. Note, Akiyama et al teaches, at page 328, right-hand column, that extracellular deposits retain immunoreactivity of N-terminal residues.

In paragraph 30 of the Official action, the examiner cites Perutz et al as showing the structure of amyloid fibers, and as providing the basis for the examiner's belief that anti-A $\beta$  antibodies may inhibit or slow aggregation, but do not disassemble aggregates.

As discussed above, the data in Solomon (PNAS 1997) clearly demonstrate disaggregation of  $A\beta$  aggregates.

In any event, in view of the amendments to the claims (new claims 150-167) that recite "inhibition" of aggregation, applicant respectfully submits that the examiner's rejection has been rendered moot.

For all of these reasons, reconsideration and withdrawal of this rejection is respectfully urged.

The present specification has now been amended to correct an obvious error in the first paragraph of column 7. The patent stated that in a preferred embodiment the expression vector includes the sequence for a human monoclonal antibody "that is an anti- $\beta$ -amyloid monoclonal antibody with heparan-like characteristics." The reference to "heparan-like characteristics" is nonsensical. The only reference to heparan in the specification is as an aggregating agent (column 11, lines 27-29, and column 16, lines 9-12). The antibodies inhibit aggregation of  $\beta$ -amyloid in the presence or absence of heparan sulfate. Thus, the antibodies do not have "heparan-like characteristics." To correct this obvious error, the words "with heparan-like characteristics" have now been deleted from this paragraph.

It should further be noted that column 16, lines 5-9, of the patent state:

Binding of mAb AMY-33 to  $\beta$ A4 prevents self-aggregation of the  $\beta$ -amyloid, probably by recognizing the sequence 25-28 located in the proposed aggregation fragment comprising the amino acids between 25-28 (Yankher et al., 1990) (FIG.8).

It is not presently believed that the epitope of AMY-33 is the sequence 25-28 of  $\beta$ -amyloid. However, the above quote only indicates that it "probably" recognizes this sequence. Therefore, there is no necessity to correct it. The present statement, however, clarifies the record in this regard.

Copies of all publications cited herein that are not already of record or attached to the Solomon declaration are attached hereto.

It is submitted that all of the claims now present in the case clearly define the references of record.

Reconsideration and allowance are therefore earnestly solicited.

Respectfully submitted,

BROWDY AND NEIMARK, P.L.L.C. Attorneys for Applicant(s)

Ву

Roger L. Browdy Registration No. 25,618

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## CLAIM SUPPORT CHART

CLAIM	SUPPORT
Claim 150. A pharmaceutical	C. 9, L. 23-25: It is
formulation, comprising:	preferable to present it as a
Totaldracton, comparison	pharmaceutical formulation.
	The formulations of the
	present inventions comprise
(A) an antibody or antigen	C. 5, L. 30-33: The
binding fragment thereof,	antibodies, or peptide
wherein:	mimicking the binding site,
wnerein:	must bind to an epitope on
	the target molecule which is
	a region responsible for
	folding or aggregation.
	C. 9, L. 24-26: The
·	formulations of the present
	invention comprise the
·	monoclonal antibody
•	C. 9, L. 45-48: [T] he use of
	engineered monoclonal
	antibodies and their
	fragments can be used in
	the present invention.
	C. 12, L. 1-8: Alternatively,
	commercially available
*	antibodies can be usedA
	polyclonal, affinity purified
	rabbit IgG obtained against
	the synthetic Alzheimer $\beta$ -
	amyloid.
	C. 16, L. 26-31: Recent
*	advances in antibody
	engineering technology, as
	well as in the development of suitable delivery
	systemsmake it possible to
* .	develop functional small
	antibody fragments to serve
	as therapeutic chaperones for
	the treatment of Alzheimer's
	disease
]	aro-cabom,
(i) said antibody and	C. 5, L. 30-33: The
said fragment recognize an	antibodies, or peptide
epitope within residues 1-28	mimicking the binding site,
of beta-amyloid, and	must bind to an epitope on
	the target molecule which is

CLAIM	SUPPORT
	a region responsible for
	folding or aggregation.
	C. 6, L. 23-27: In a further
	preferred embodiment the
	monoclonal antibody is an
	$anti-\beta$ -amyloid and is
	designated AMY-33 which
·	recognizes amino acids 1-28
	of β-amyloid.
	C. 15, L. 35-38: mAb AMY-
	33raised against peptide[s]
,	1-28of the \$-amyloid.
,	C. 15, L. 43-46: The antibody
	AMY-33, which is supposed to
	recognize an epitope spanned
*	between sequence 1-28,
	inhibits the β-amyloid
	aggregation
(ii) said antibody	C. 6, L. 21-23: In the
and said fragment inhibit	preferred embodiment the
aggregation of beta-amyloid;	human monoclonal antibody
and	that binds to an aggregating
	protein and which prevents
	aggregation is utilized.
	C. 9, L. 61-62: The
*	antibodies effect on the
	inhibition of aggregation
*	C. 15, L. 43-46: The antibody
	AMY-33, which is supposed to
	recognize an epitope spanned
·	between sequence 1-28,
	inhibits the $\beta$ -amyloid
	aggregation
(B) a pharmaceutically	C. 9, L. 24-27: The
acceptable carrier.	formulations of the present
_	invention comprise at least
,	one active ingredient: the
	monoclonal antibody or
	expression vector together
	with one or more
	pharmaceutically acceptable
	carriers
Claim 151. The	See claim 150
pharmaceutical formulation	, and
of claim 150,	
wherein said antibody is a	C. 5, L. 51-53: In the
monoclonal antibody.	preferred embodiment of the
MOHOCTOHAT WILCIDOGA.	PACEBIACE CHICAGAINCIA

CLAIM	SUPPORT
	method, the target molecule
	is $\beta$ -amyloid and the
	monoclonal antibody is an
	anti- $\beta$ -amyloid monoclonal.
	C. 6, L. 1-6: Once an
	appropriate monoclonal
	antibody with chaperone-like
	activity is found or
	engineered, the present
	invention provides for its
	use therapeutically to
	prevent or reduce protein
	aggregation in vivo.
	C. 9, L. 22-28: It is
	preferable to present it as a
	pharmaceutical formulation.
	The formulations of the
	present invention comprise at
	least one active ingredient:
	the monoclonal antibody or
	expression vector together
	with one or more
	pharmaceutical acceptable
	carriers and optionally other
	therapeutic ingredients.

Claim 152. The pharmaceutical formulation of claim 151, wherein said antibody is a	See claim 151
human monoclonal antibody.	C. 6, L. 21-23: In the preferred embodiment the human monoclonal antibody that binds to an aggregating protein and which prevents aggregation is utilized. C. 7, L. 7-12: In a preferred embodiment the expression vector includes the sequence for a human monoclonal antibody that is an anti-β-amyloid monoclonal antibody with heparin-like characteristics.

Claim 153. The	See claim 151
pharmaceutical formulation	

CLAIM	SUPPORT
of claim 151,	
wherein said antibody is a genetically-engineered monoclonal antibody.	C. 9, L. 45-48: the use of engineered monoclonal antibodies and their fragments, as well as peptides which mimic the binding site for the antigen on the antibody can be used in the present invention.  C. 10, L. 1-5: The present invention uses genetically engineered antibodies obtained from such selected antibodies as protecting agents of in vivo aggregation of their antigen

Claim 154. The	See claim 153
pharmaceutical formulation	Dee 074711 T23
of claim 153,	
wherein said antibody is a	C. 6. L. 27-29: Work by
single-chain antibody.	Duenas et al. (1994) and
]	Marasco et al. (1993) have
	shown that single chain
	monoclonal antibodies are
	efficient for intracellular
	expression in eukaryotes.
	C. 7, L. 9-11: In a further
	preferred embodiment, the
	expression vector includes
	the sequence for the single
	chain monoclonal antibody of
	the above anti- $\beta$ -amyloid mAb.
	C. 16, L. 34-37: Application
	of the above findings for in
	vivo aggregation, can confer
	to single chain antibodies or
	other engineered antibody
	fragments, a protective role
	in the renaturation of
	recombinant proteins

Claim 155. The	See claims 150-154
pharmaceutical formulation	
of any one of claims 150-	
154,	

CLAIM	SUPPORT
wherein said beta-amyloid is	C. 8, L. 19-21: The
human beta-amyloid.	expression vector containing
	the sequence for the anti-
	aggregation molecule may be
	administered to mammals,
	including humans
	C. 11, L. 20-23: Amyloid
	peptides, Aβ 1-40 (Cat. No.
	A-5813) and A $\beta$ 1-28 (Cat. No.
	A-1084) corresponding to
	amino acids 1-40 and 1-28 of
	A $eta$ respectively, were
	produced from Sigma Chemical
	Co., St. Louis, MO., USA.
	C. 12, L. 1-3: Alternatively,
	commercially available
	antibodies can be used.
	α-Human β-amyloid 6F/3D was
	obtained
	C. 16, L. 27-33: Recent
	advances in antibody
*	engineering technology, as
	well as in the development of suitable delivery
	systemsmake it possible to
	develop functional small
	antibody fragments to serve
	as therapeutic chaperones for
	the treatment of Alzheimer's
	disease as well as other
	human amyloidosis diseases
	HUMANI AMYTOTOOSTO GTSEASES

Claim 156. A pharmaceutical formulation, comprising:	C. 9, L. 23-25: It is preferable to present it as a pharmaceutical formulation. The formulations of the present inventions comprise
(A) an antibody or antigen binding fragment thereof, wherein:	c. 5, L. 30-33: The antibodies, or peptide mimicking the binding site, must bind to an epitope on the target molecule which is a region responsible for folding or aggregation. c. 9, L. 24-26: The formulations of the present invention comprise the

	SUPPORT monoclonal antibody
1	C. 9, L. 45-48: [T] he use of
	engineered monoclonal
<b>]</b> .	antibodies and their
}:	fragments can be used in
\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	the present invention.
(	C. 12, L. 1-8: Alternatively,
	commercially available
} {	antibodies can be usedA
}	polyclonal, affinity purified
)	rabbit IgG obtained against
t	the synthetic Alzheimer $eta$ -
· · · · · · · · · · · · · · · · · · ·	amyloid.
l	C. 16, L. 26-31: Recent
1	advances in antibody
	engineering technology, as
	well as in the development of
	suitable delivery
	systems make it possible to
	develop functional small
	antibody fragments to serve
	as therapeutic chaperones for
1	the treatment of Alzheimer's
	disease
	C. 6, L. 23-27: In a further
(	preferred embodiment the
[	monoclonal antibody is an
	anti-β-amyloid and is designated AMY-33 <b>which</b>
	recognizes amino acids 1-28
P I	of $\beta$ -amyloid.
	C. 15, L. 35-38: mAb AMY-
l l	33_raised against peptide[s]
	$1-28$ of the $\beta$ -amyloid.
i i	C. 15, L. 43-46: The antibody
	AMY-33, which is supposed to
	recognize an epitope spanned
1	between sequence 1-28,
	inhibits the $\beta$ -amyloid
	aggregation
(ii) said antibody and	C. 6, L. 21-23: In the
	preferred embodiment the
	human monoclonal antibody
	that binds to an aggregating
	protein and which prevents
	aggregation is utilized.
	C. 9, L. 61-62: The

CLAIM	SUPPORT
	antibodies effect on the
,	inhibition of aggregation
	C. 15, L. 43-46: The antibody
	AMY-33, which is supposed to
	recognize an epitope spanned
	between sequence 1-28,
	inhibits the β-amyloid
	aggregation
(B) a pharmaceutically	C. 9, L. 24-27: The
acceptable carrier.	formulations of the present
	invention comprise at least
	one active ingredient: the
	monoclonal antibody or
	expression vector together
	with one or more
	pharmaceutically acceptable
	carriers

Claim 157. The	See claim 156
pharmaceutical formulation	
of claim 156,	
wherein said antibody is a	C. 5, L. 51-53: In the
monoclonal antibody.	preferred embodiment of the
	method, the target molecule
	is $\beta$ -amyloid and the
	monoclonal antibody is an
	anti- $\beta$ -amyloid monoclonal.
	C. 6, L. 1-6: Once an
	appropriate monoclonal
	antibody with chaperone-like
	activity is found or
	engineered, the present
	invention provides for its
	use therapeutically to
1	prevent or reduce protein
	aggregation in vivo.
	C. 9, L. 22-28: It is
	preferable to present it as a
	pharmaceutical formulation.
	The formulations of the
•	present invention comprise at
	least one active ingredient:
	the monoclonal antibody or
·	expression vector together
	with one or more
	pharmaceutical acceptable
	carriers and optionally other

CLAIM	SUPPORT
	therapeutic ingredients.
Claim 158. The	See claim 157
pharmaceutical formulation	
of claim 157,	
wherein said antibody is a	C. 6, L. 21-23: In the
human monoclonal antibody.	preferred embodiment the
	human monoclonal antibody
	that binds to an aggregating
	protein and which prevents
	aggregation is utilized.
	C. 7, L. 7-12: In a preferred
	embodiment the expression
	vector includes the sequence
	for a human monoclonal
	antibody that is an anti- $\beta$ -
	amyloid monoclonal antibody
	with heparin-like
	characteristics.

Claim 159. The pharmaceutical formulation of claim 157,	See claim 157
wherein said antibody is a genetically-engineered monoclonal antibody.	c. 9, L. 45-48: the use of engineered monoclonal antibodies and their fragments, as well as peptides which mimic the binding site for the antigen on the antibody can be used in the present invention.  c. 10, L. 1-5: The present invention uses genetically engineered antibodies obtained from such selected antibodies as protecting agents of in vivo aggregation of their antigen

Claim 160. The pharmaceutical formulation of claim 159,	See claim 159
wherein said antibody is a single-chain antibody.	C. 6. L. 27-29: Work by Duenas et al. (1994) and Marasco et al. (1993) have shown that single chain monoclonal antibodies are

CLAIM	SUPPORT
	efficient for intracellular
	expression in eukaryotes.
· ·	C. 7, L. 9-11: In a further
,	preferred embodiment, the
	expression vector includes
	the sequence for the single
	chain monoclonal antibody of
	the above anti- $\beta$ -amyloid mAb.
	C. 16, L. 34-37: Application
	of the above findings for in
	vivo aggregation, can confer
·	to single chain antibodies or
7	other engineered antibody
	fragments, a protective role
	in the renaturation of
ĺ	recombinant proteins

Claim 161. The	See claims 156-160
pharmaceutical formulation	* * 1
of any one of claims 156-	
160,	
wherein said beta-amyloid is	C. 8, L. 19-21: The
human beta-amyloid.	expression vector containing
	the sequence for the anti-
	aggregation molecule may be
·	administered to mammals,
	including humans
	C. 11, L. 20-23: Amyloid
ĺ	peptides, $A\beta$ 1-40 (Cat. No.
	A-5813) and A $\beta$ 1-28 (Cat. No.
	A-1084) corresponding to
	amino acids 1-40 and 1-28 of
	Aβ respectively, were
0.	produced from Sigma Chemical
	Co., St. Louis, MO., USA.
	C. 12, L. 1-3: Alternatively,
	commercially available
	antibodies can be used.
	$\alpha$ -Human $\beta$ -amyloid 6F/3D was
	obtained
	C. 16, L. 27-33: Recent
*	advances in antibody
	engineering technology, as
	well as in the development of
	suitable delivery
	systemsmake it possible to
	develop functional small

CLAIM	SUPPORT
	antibody fragments to serve
į	as therapeutic chaperones for
	the treatment of Alzheimer's
	disease as well as other
	human amyloidosis diseases

<u></u>	Henry Lougher and Lough
Claim 162. A pharmaceutical	C. 9, L. 23-25: It is
formulation, comprising:	preferable to present it as a
	pharmaceutical formulation.
	The formulations of the
	present inventions comprise
(A) an antibody or antigen	C. 5, L. 30-33: The
binding fragment thereof,	antibodies, or peptide
wherein:	mimicking the binding site,
wifererii:	must bind to an epitope on
	the target molecule which is
	a region responsible for
	folding or aggregation.
•	C. 9, L. 24-26: The
·	formulations of the present
	invention comprise the
	monoclonal antibody
·	C. 9, L. 45-48: [T] he use of
	engineered monoclonal
	antibodies and their
	fragments can be used in
·	the present invention.
*	C. 12, L. 1-8: Alternatively,
	commercially available
	antibodies can be usedA
	polyclonal, affinity purified
İ	rabbit IgG obtained against
	the synthetic Alzheimer $\beta$ -
	amyloid.
1	C. 16, L. 26-31: Recent
	advances in antibody
	engineering technology, as
	well as in the development of
- ⊗	suitable delivery
1	systemsmake it possible to
4	develop functional small
	antibody fragments to serve
}	as therapeutic chaperones for
	the treatment of Alzheimer's
	disease
(i) said antibody and	C. 5, L. 30-33: The
said fragment recognize an	antibodies, or peptide
Baid Iragment recognize at	Charles of the Park and the Par

CLAIM	
epitope within residues 1-28	SUPPORT
of beta-amyloid, and	The state of the s
u =====, ====	must bind to an epitope on
	the target molecule which is
	a region responsible for
	folding or aggregation.
	C. 6, L. 23-27: In a further
	preferred embodiment the
	monoclonal antibody is an
	$\beta$ -amyloid and is
	designated AMY-33 which
	recognizes amino acids 1-28
	of β-amyloid.
	C. 15, L. 35-38: mAb AMY-
	33raised against peptide(s)
	$-1-28$ Of the $\beta$ -amploid
	C. 15, L. 43-46: The antibody
	AMY-33, Which is supposed to
	recognize an epitope spanned
	Detween sequence 1-28.
	inhibits the $\beta$ -amyloid
	aggregation
(ii) said antibody and	C. 1., L. 35-37: In vitro
said fragment maintain the	aggregation limits the
solubility of soluble beta-	protein stability, solubility
amyloid; and	and yields in production of
_	recombinant proteins.
	C. 3, L. 54-56: which
	prevents aggregation and
	allows biological activity of
	the target molecule
36	C. 6, L. 12-15:binds to an
	aggregating protein which is
ļ	the cause of a disease and
	which prevents aggregation
	and yet allows the protein to
	be bioactive.
	Col. 10, L. 1-5: The present
	invention uses genetically
	engineered antibodies
	obtained from such selected
	antibodies of in vivo
Į.	aggregation of their antigen,
	leading to production of a
	soluble and stabilized
<b>,</b>	protein.
	Col. 10, L. 16-19: The
	identification of such

CLAIM	SUPPORT
	classes of sequences that
	play a role in the folding-
	unfolding and/or
	solubilization-aggregation
	provides the basis of the
	present invention for
	prevention of aggregation.
	C. 13, L. 30-32, 38-40, Fig.
	7a and 7b: The residual
	soluble β-amyloid was
	incubated for another one
	hour at 37° C with mAbs AMY-
	33 and/or 6F3D at equal molar
	ratio antibody/antigenThe
	amount of mAb bound will be
	proportional to the amount of
	soluble amyloid which
	remained after exposure to
	aggregating conditions.
(B) a pharmaceutically	C. 9, L. 24-27: The
acceptable carrier.	formulations of the present
	invention comprise at least
	one active ingredient: the
	monoclonal antibody or
	expression vector together
	with one or more
	pharmaceutically acceptable
	carriers

Claim 163. The	See claim 162
pharmaceutical formulation	
of claim 162,	
wherein said antibody is a	C. 5, L. 51-53: In the
monoclonal antibody.	preferred embodiment of the
-	method, the target molecule
	is $\beta$ -amyloid and the
	monoclonal antibody is an
	anti-\beta-amyloid monoclonal.
	C. 6, L. 1-6: Once an
	appropriate monoclonal
	antibody with chaperone-like
	activity is found or
·	engineered; the present
	invention provides for its
	use therapeutically to
	prevent or reduce protein
	aggregation in vivo.

CLAIM	SUPPORT
	C. 9, L. 22-28: It is
	preferable to present it as a
	pharmaceutical formulation.
	The formulations of the
	present invention comprise at
	least one active ingredient:
·	the monoclonal antibody or
	expression vector together
	with one or more
	pharmaceutical acceptable
	carriers and optionally other
	therapeutic ingredients.

Claim 164. The pharmaceutical formulation of claim 163,	See claim 163
wherein said antibody is a human monoclonal antibody.	<ul> <li>C. 6, L. 21-23: In the preferred embodiment the human monoclonal antibody that binds to an aggregating protein and which prevents aggregation is utilized.</li> <li>C. 7, L. 7-12: In a preferred embodiment the expression vector includes the sequence for a human monoclonal antibody that is an anti-β-amyloid monoclonal antibody with heparin-like characteristics.</li> </ul>
i .	l

Claim 165. The pharmaceutical formulation of claim 163,	See claim 163
wherein said antibody is a genetically-engineered monoclonal antibody.	C. 9, L. 45-48: the use of engineered monoclonal antibodies and their fragments, as well as peptides which mimic the binding site for the antigen on the antibody can be used in the present invention.  C. 10, L. 1-5: The present invention uses genetically engineered antibodies obtained from such selected

CLAIM	SUPPORT
	antibodies as protecting agents of in vivo aggregation of their antigen
	or cherr andragen

Claim 166. The	See claim 165
pharmaceutical formulation	
of claim 165,	
wherein said antibody is a	C. 6. L. 27-29: Work by
single-chain antibody.	Duenas et al. (1994) and
	Marasco et al. (1993) have
	shown that single chain
	monoclonal antibodies are
	efficient for intracellular
·	expression in eukaryotes.
	C. 7, L. 9-11: In a further
	preferred embodiment, the
,	expression vector includes
	the sequence for the single
	chain monoclonal antibody of
	the above anti- $\beta$ -amyloid mAb.
	C. 16, L. 34-37: Application
	of the above findings for in
	vivo aggregation, can confer
	to single chain antibodies or
	other engineered antibody
	fragments, a protective role
-	in the renaturation of
	recombinant proteins

Claim 167. The pharmaceutical formulation of any one of claims 162-166,	See claims 162-166
wherein said beta-amyloid is human beta-amyloid.	<ul> <li>C. 8, L. 19-21: The expression vector containing the sequence for the antiaggregation molecule may be administered to mammals, including humans</li> <li>C. 11, L. 20-23: Amyloid peptides, Aβ 1-40 (Cat. No. A-5813) and Aβ 1-28 (Cat. No. A-1084) corresponding to amino acids 1-40 and 1-28 of Aβ respectively, were produced from Sigma Chemical</li> </ul>